

PORT HADLOCK NAVAL ORDNANCE CENTER, PACIFIC DIVISION DETACHMENT KEYPORT, WASHINGTON

Engineering Field Division/Activity: EFANW

Major Claimant: COMNAVSEASYSOM

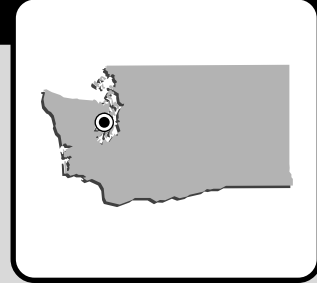
Size: 2,716 Acres

Funding to Date: \$5,368,000

Estimated Funding to Complete: \$15,352,000

Base Mission: Receives, stores, maintains and issues ordnance

Contaminants: TNT, heavy metals (arsenic, cadmium), volatile organic compounds



Number of Sites:		Relative Risk Ranking of Sites:		
CERCLA:	16	High:	5	Not Evaluated: 0
RCRA Corrective Action:	0	Medium:	1	Response Complete: 9
RCRA UST:	0	Low:	1	Total Sites: 16
Total Sites:	16			

NPL

EXECUTIVE SUMMARY

Port Hadlock NOC is located on Indian Island in northeastern Jefferson County, Washington, at the northern end of Puget Sound, near the town of Port Townsend. The primary source of contamination has been from landfills and ordnance disposal. Port Hadlock has served as an ammunition storage and submarine net depot since 1939. Primary contaminants at Port Hadlock NOC are TNT, heavy metals, the chemical additive PCBs, other ordnance compounds such as RDX and volatile organic compounds. The media affected by these contaminants has been groundwater, surface water/sediments, and soil. The Navy has changed its operational processes to prevent further contamination.

Environmental investigations since 1984 have focused on cleaning up and preventing future contamination of shellfish beds which are located near the installation. Contaminants can migrate via groundwater and overland flow into the bays or can migrate by soil to the sea-level aquifer. The bays are used for both recreational and commercial fishing. A Current Situation Report, completed in FY88, found trace metals (including lead), organics, and petroleum hydrocarbons in shellfish near the north end landfill. A study completed in 1993 found similar results. Sediments have shown no contamination.

Certain areas of Port Hadlock are eligible for the National Register for Historical Places. Sites 10, 11 and 12 have Native American archeological concerns because these areas were actively used by Native American tribes. Site 10 has large shell deposits called middens that were used for ceremonies. The midden at Site 10 was tested and shown to be over 2,000 years old. Site 11 includes burial grounds. Native American Tribes have been consulted on cleanup issues at Port Hadlock.

Indian Island is in a rural setting surrounded by Puget Sound and is connected to the main land by two bridges. There are threatened and endangered species in the vicinity. Nine active bald eagle nests are on the Island. Site 21 sits between the only two drinking water wells. These wells

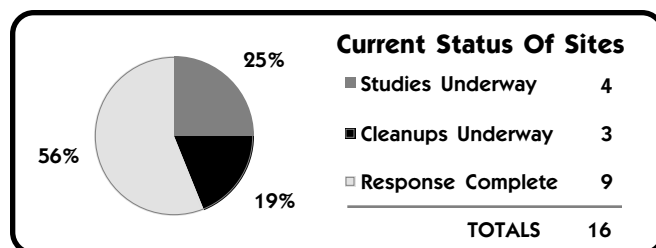
are no longer used, as water is piped in from Port Townsend. Sites 10, 11 and 12 are adjacent to wetlands. The local community is mostly concerned about the shellfish beds, and groundwater, as many local wells have been impacted by saltwater intrusion.

Community relations are an ongoing effort. The Community Relations Plan (CRP) was finalized in FY92 and is in the process of being revised. A series of fact sheets for the installation cover topics such as state involvement and oversight, the Site Hazard Assessment program, and the results of shellfish and sediment sampling. The TRC was converted to a Restoration Advisory Board (RAB) in FY95. There are 30 RAB members from regulatory agencies, local Native American Tribes, and the community. The Navy had an open house for the RAB in July 1995.

At the end of FY95, four of the 16 sites at Port Hadlock NOC were in the Study Phase, three were in the Cleanup Phase, and nine were Response Complete (RC). In FY87, a removal action was conducted at Site 17. A tank was removed and gas was vented to complete Remedial Action (RA) at this site. An RA has been completed at Sites 13 and 16. Underground Storage Tanks (USTs) were removed at Site 16 in FY91 and tanks and soil were removed at Site 13 in FY91 and FY94. Soils contaminated with ordnance have been removed from Sites 11 and 12 and petroleum contaminated soils have been removed from Site 18.

In FY96, an RA at Site 10 will begin. This RA will involve construction of a landfill cap and a shoreline protection system. The RA will be completed in FY97. Long term groundwater monitoring and shellfish monitoring will follow the RA. Compliance monitoring will continue at Site 12 in FY96. At Site 34, the SI will be completed in FY97. A removal action is anticipated at this site. An RA will be completed at Site 21 in FY97.

Bio-geo-engineering has been applied to protect the shoreline at Site 10. The bank was eroding and spilling landfill contents onto the beach. Working with Native Tribes and State Agencies such as Department of Wildlife, Department of Natural Resources, and Department of Ecology, this problem has been solved by planting selected vegetation on the bank. Partnering with regulators and the public allowed the Navy to complete a cleanup at Site 11. After the cleanup, it was agreed no further study would be required, saving over two million dollars. The site has been proposed for delisting from the Washington State Hazardous Sites List. Partnering with regulators and the community will also expedite cleanup at Site 23 as was done at Site 11. The cleanup should prevent further study by solving the problem up front.



PORT HADLOCK NOC PAC DIV DET RELEVANT ISSUES

ENVIROMENTAL RISK



HYDROGEOLOGY - The aquifer at Site 21 is very deep and flat. It is over 150 feet deep. The groundwater at Site 34 has been found to be perched aquifer about 20 feet deep. Surface runoff goes to the bay, which supports commercial shellfish beds. Sites 10, 11, 12 and 18 are near shoreline. The landfill sits partially below sea level. It has been shown that contaminants transport via groundwater to the shellfish beds off Site 10. Two drinking water wells near Site 21 are not used and have not been sampled for many years. Contaminants can migrate via surface and groundwater on Indian Island. Surface runoff does not follow defined channels but flows overland into the bays surrounding the island. These bays are used for recreational and commercial fishing. Contaminants can also migrate to the sea level aquifer. The primary water supply for Indian Island is imported via a pipeline from Port Townsend, however, two backup wells are maintained that tap the sea level aquifer. Because of the tides, some of the Port Hadlock sites can only have cleanup activities scheduled for certain times of the year.



NATURAL RESOURCES - Several beaches around Port Hadlock are productive shellfish propagation areas. A Current Situation Report, completed in FY88, found trace metals, including lead, organics, and petroleum hydrocarbons in shellfish near Site 10 (North End Landfill). Threatened or endangered bird species in the Port Hadlock area include the bald eagle, the American Peregrine Falcon, and the Aleutian Canadian Goose. Site 11 (Walan Point) is adjacent to a bird sanctuary and a wetland that provide habitats for threatened and endangered species.



RISK - Five sites at Port Hadlock received a high relative risk ranking using the DOD Relative Risk Ranking System. All sites have groundwater contamination. The landfill site, Site 10, also has contaminants in sediments. Receptors are human and ecological, threatened and endangered species. There is evidence of unacceptable risk from eating shellfish harvested from the wetlands and shoreline areas which are adjacent to the landfill. Sites 11 and 12 are former ordnance disposal areas. Site 11 is also adjacent to wetlands and shoreline areas. Site 21 was used for disposal in the 1940's. Soils contaminated with ordnance were removed from Sites 11 and 12 in FY94. Soil containing metallic refuse and other debris was removed from Sites 11 and 12 in FY95. Remedial action involving a landfill cap at Site 10 will be completed in FY97. Site 10 will also have a shoreline protection system and groundwater and shellfish monitoring. Remedial action at Site 21 will be completed in FY97. The Agency for Toxic Substances and Disease Registry (ATSDR) completed a Public Health Assessment in 1995. Recommendations were made for further shellfish monitoring. No immediate concerns were found.



RESTORATION PROJECTS - Removal actions at Site 11 (Walan Point) included salvaging and transplanting selected native plants to twelve capillary beds. The beds were maintained and watered on a regular basis throughout the removal actions. In addition, seeds of selected native species (shrubs and herbs) from areas within and adjacent to the construction zone at Site 11 were collected, cleaned, and dried. After all removal actions were completed at Site 11 and Site 12 (Griffin Street), a successful vegetative restoration program was conducted. Site 10 is undergoing restoration to improve marine habitat as part of the shoreline protection system.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - Port Hadlock was listed on the National Priorities List (NPL) in June 1994 based on a Hazard Ranking System (HRS) score of 50.00. The landfill at Site 10 has contributed to contamination of the surrounding beaches through erosion and groundwater. It is a critical site and contributed heavily to the NPL scoring. The site is eligible for the National Register for Historical Places.



LEGAL AGREEMENTS - An Interagency Agreement (IAG) is being negotiated with the State of Washington and EPA Region X.



PARTNERING - Partnering with regulators and the public allowed a fast cleanup at Site 11, precluding the need for an RI/FS. This saved the Navy over two million dollars. The site was listed as no further action in the ROD signed in August 1995. Also, the State of Washington has proposed it for delisting from the Washington State Hazardous Sites List.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was formed in 1988. The TRC was converted to a Restoration Advisory Board (RAB) in July 1995. There are 30 RAB members from regulatory agencies, local Native American tribes, and the community. The RAB meets once a month and minutes are mailed to all members. The Navy had an open house for the RAB in July 1995.



COMMUNITY RELATIONS PLAN - The Community Relations Plan (CRP) was finalized in FY92 and is currently being revised. A series of fact sheets for the installation cover topics such as state involvement and oversight, the Site Hazard Assessment program, and the results of shellfish and sediment sampling.



INFORMATION REPOSITORY - The Administrative Record was established in the 1980's. An Information Repository, containing copies of the Administrative Record documents, is available to the public at the Port Hadlock Library.

PORT HADLOCK NOC PAC DIV DET HISTORICAL PROGRESS

FY79-FY90

Site 10 - The SI was completed. Trace metals (including lead), organics, and petroleum hydrocarbons were found in soil, sediment, and shellfish. An RI/FS was recommended.

Site 17 - A tank was removed and field monitoring of explosive gas concentrations was completed. The RA was completed and involved the installation of piping and fans to vent the methane gas in the tank, which reduced methane gas levels to below explosive level.

Site 21 - An SI was completed. Halogenated hydrocarbons and polynuclear aromatic hydrocarbon were found in the soil. An RI/FS was recommended.

FY91

Sites 11, 12, 15, 18-20 and 22 - The State of Washington Department of Ecology issued an Enforcement Order for NOC Port Hadlock. The state's primary concerns involved ordnance contamination at sites that were not recommended for further action in the PA. As a result of negotiations between the Department of the Navy and the State of Washington, a Site Hazard Assessment (equivalent to an SI) was conducted for these sites.

Site 13 - One 3,000 gallon tank leaked; less than 500 gallons were lost and the tank was repaired. Later that year, the same tank failed a precision tightness test. The RA consisted of tank removal and removal of petroleum contaminated soils. The soils were landfarmed on site to reduce levels to below regulatory limits.

Sites 15, 19, 20 and 22 - These sites were recommended for no further action.

Site 16 - Removal action of the underground storage tanks was completed.

Sites 18 and 20 - It was determined that more extensive sampling and analysis needed to be conducted to further characterize the nature and extent of the contamination before the site would be recommended for an RI/FS.

FY93

Site 11 - This site was recommended for removal action and an RI/FS.

Site 12 - This site was recommended for removal action.

Site 18 - The SI was completed and a removal action was recommended.

Site 20 - The SI was completed.

Site 30 - The SI was completed at this sites that was identified during construction of a vehicle wash area. Contamination consisting of diesel and heavy oils in soils was verified.

FY94

Site 13 - Petroleum-contaminated soil was removed and landfilled off site.

Site 30 - A removal action consisting of removing petroleum contaminated soil and landfilling of the site was completed. No further action is anticipated.

Site 33 - This site was added to the program. An SI is planned.

PROGRESS DURING FISCAL YEAR 1995

FY95

Sites 11, 12, and 18 - Interim Removal Action (IRA) was completed. Sites 11 and 12 have Native American archeological concerns. Soil containing metallic refuse and other debris was removed from Sites 11 and 12 and placed at an approved disposal facility. Site 18 was a catch basin for drain pipes and contained sediments contaminated with Polynuclear Aromatic Hydrocarbons (PAHs). These sediments were removed. Compliance monitoring at these three sites began to determine if the removal action was effective. A ROD was signed in August listing these sites as No Further Action (NFA). Monitoring was completed for Sites 11 and 18.

Sites 10 and 21 - A Record of Decision (ROD) was signed. This ROD presents the selected remedial action for Sites 10 and 21. The landfill at Site 10 has contributed to contamination of the surrounding beaches through erosion and groundwater. It is a critical site and contributed

heavily to the NPL scoring. The site is eligible for the National Register for Historical Places. Remedial action will include capping the landfill and installing a shoreline protection system along the perimeter of the landfill to keep landfill contents from eroding onto the beach. This shoreline protection system will incorporate bio-geo-engineering techniques. The ROD specifies groundwater monitoring for two years at Site 21, and old fill area, to determine whether the detections of certain chemicals in the groundwater during the RI were anomalous.

Site 34 - A new site was identified. Site 34 is an Open Burn/Open Detonation Area. A Site Inspection (SI) began to determine the extent of contamination at this new site.

Sites 11, 12, 15, 18, 20, 22 - An NFA ROD was signed in September 1995.

PLANS FOR FISCAL YEARS 1996 AND 1997

FY96

Site 10 - RD will be completed. RA will begin of landfill cap and shoreline protection system.

Site 12 - Compliance monitoring will continue at this site.

FY97

Site 10 - RA will be completed. Long term groundwater monitoring and shellfish monitoring will begin following construction of cap and shoreline protection system.

Site 21 - Groundwater monitoring, as specified in the ROD signed in 1995, should be completed, and this is expected to be the final RA.

Site 34 - The SI will be completed. A removal action is anticipated at this site.

PORT HADLOCK NOC PAC DIV DET PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	13							
SI	10			2				
RI/FS		5		1	1			
RD		4	1	1		1		
RA	3	1		1	1	3	1	
IRA	3(3)	2(2)		1(1)			1(1)	
RC	8	1			1		2	4
Cumulative Response Complete	50%	56%			62%		75%	100%